

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the foregoing amendments and the following remarks.

Claim Status

Claims 1-14 were originally presented in this application. Claims 2 and 10 have been canceled. Claims 1, 3, 7, 8, 10, and 14 have been previously amended. Claims 15-18 were previously added. Claims 19, 20, 21 and 22 have been added and are identical to original claims 1, 7, 8, and 14 respectively, thus, no new matter has been added. Accordingly, claims 1, 3-8, and 10-22 are currently pending in this application.

An Amendment After Final was submitted on December 6, 2006. The amendment was not entered because it contained new claims 19-22 which were added without canceling an equal number of finally rejected claims. In view of the currently filed RCE and applicant's authorization to charge any additional fees to deposit account 08-2447, this preliminary amendment should be entered.

132 Declaration

The declaration under rule 132 filed with the Amendment After Final was not entered because it should have been in response to

the first office action. In view of the currently filed RCE, the attached 132 Declaration should be entered.

§103 Rejection

Claims 1, 3-8 and 10-18 are rejected as being obvious in view of Cho (USPN 6616841). Applicant respectfully disagrees. Applicant contends that Cho does not teach or suggest the instant invention and, furthermore, Cho is nonanalogous art.

Independent claims 1, 7, 8 and 14 teach a membrane contactor/system where the center tube is plugged at the same end where the hollow fiber lumens are open and that the center tube is open at the same end where the hollow fiber lumens are closed. This configuration of a membrane contactor is nonobvious in view of Cho because Cho does not teach or suggest this configuration of a membrane contactor. All claim limitations must be taught or suggested. MPEP § 2143.03.

The Examiner stated, in the Final Office Action, that Cho teaches, in Figure 4, where the membrane lumen is open only on one end, "but is not the same end as claimed, but eliminates the 'first' end cap in the reference in Figure 4." The Examiner further stated that "this difference in the claims is only an obvious equivalent of the teaching of the reference unless

applicant can show otherwise, with evidence." Applicant respectfully disagrees with this statement.

First, the examiner, (not the applicant, as the Examiner has requested) bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. MPEP § 2142. Furthermore, the Courts have held that "particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed," *In re Rouffet*, 149 F.3d 1350 at 1357 (Fed. Cir. 1998), and that these findings must be "clear and particular." *In re Dembiczak*, 175 F.3d 994 at 999 (Fed. Cir. 1999).

Accordingly, where is the clear and particular factual support for altering Figure 4 of Cho to get to the instant invention, i.e. where are the clear and particular findings of why Cho should be altered to the configuration of the instant invention? The Examiner has not come forward with any clear and particular findings and the claimed configuration is found only in the instant application.

Second, it appears that the Examiner is implying that because the difference in Figure 4 of Cho and the instant application is a simple difference, the simple difference is obvious. Regarding simple differences, the Courts have reasoned that the temptation to engage in impermissible hindsight is especially strong with

seemingly simple mechanical inventions and even with simple differences, "combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *In re Dembicza*k, 175 F.3d 994 at 999, (Fed. Cir. 1999). Thus, although the difference between Figure 4 of Cho and the instant application might be a simple difference, it is impermissible hindsight reconstruction to say the difference is obvious without evidence of a suggestion, teaching or motivation.

Thus, since it is not the Applicant's initial burden to come forward with evidence of nonobviousness, as the Examiner has requested, and since the Examiner has not shown any clear and particular factual support for why altering Figure 4 of Cho to get to the instant invention is obvious, the Examiner has not shown a *prima facie* case of obviousness. Therefore, claims 1, 3-8 and 10-18 should be allowed.

Assuming arguendo that the Examiner has made out a *prima facie* case of obviousness, Applicant submits the attached 132 Declaration by one of the named inventors, Amitava Sengupta, as evidence that the difference in the instant configuration, as claimed, is not an obvious equivalent of Cho.

Although Cho shows a membrane contactor in Figure 4 where the center tube is plugged at one end and opened at the other, Cho does not show a membrane contactor, as in the instant application, where the center tube is plugged at the same end where the hollow fiber lumens are open, and open at the same end where the hollow fiber lumens are closed. As shown in the Sengupta Declaration, this configuration is nonobvious in view of the prior art because it provided an unexpected result of allowing the instant invention to be made more easily.

"Evidence of unexpected results must be weighted against evidence supporting *prima facie* obviousness in making a final determination of the obviousness of the claimed invention." *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978). Thus, in the instant invention, the Sengupta Declaration must be weighed in making a final determination of obviousness.

First, this configuration, as shown in the Sengupta Declaration, provided the unexpected result of allowing the membrane contactor to be made more easily because it eliminated the need to dual weld the end cap to the shell and center tube. Welding the end cap to the shell was previously done by simultaneously welding the end cap to the shell and the end cap to the center tube (see Sengupta Declaration, Paragraph 7-12). In Figure 4 of Cho, the dual welding step is where end cap 15 must be

simultaneously welded to center tube 12 and shell 13 in order to provide a sealed headspace 28. This dual welding step is very difficult to accomplish when manufacturing a membrane contactor (see Sengupta Declaration, Paragraph 14). Thus, eliminating the dual welding step, as required in Figure 4 of Cho, to a single weld of the shell to the end cap allows a membrane contactor to be made more easily which is an unexpected result of this configuration, making the configuration of a membrane contactor of the instant invention nonobvious.

Second, this configuration resulted in the unexpected result of allowing the membrane contactor to be made more easily by allowing the membrane contactor to be created where the shell, end caps, tube sheets, and center tube may be made out of the same material (see Sengupta Declaration, Paragraphs 15-16). Cho, Kuzumoto, Huang, nor Katou teach or suggest, as the Examiner has asserted, that the shell, end caps, tube sheets, and center tube must be made from the same material. Where is that suggestion? Answer, only in the instant application. Thus, eliminating the dual welding step to a single weld of the shell to the end cap allows the shell, end caps, tube sheets and center tube to be made out of the same material making this configuration nonobvious.

Therefore, Cho does not teach or suggest making a membrane contactor with the configuration of the instant application, i.e., where the center tube is plugged at the same end where the hollow fiber lumens are open and the center tube is open at the same end where the hollow fiber lumens are closed. Thus, this configuration of a membrane contactor is nonobvious because it resulted in an unexpected result; thus, claims 1, 3-8 and 10-18 should be allowed.

Furthermore, Cho is nonanalogous art to the instant application. To rely on a reference under 35 USC § 103, it must be analogous prior art. MPEP § 2141.01(a). To be analogous prior art, the reference must be "reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992).

The instant application is designed for solving the problem of welding the end cap to the shell with a single welding step. Cho, on the other hand, is directed toward making a hollow fiber membrane contactor with a polymethyl pentene (PMP) hollow fiber. (Column 2, Lines 8-29). The Examiner has asserted, in his latest response, that the "Cho reference is intended for the exact same function and has the same type of membrane as that of the claimed invention." However, Cho is not intended for merely creating a membrane contactor as the Examiner is implying, Cho is intended for

making a hollow fiber membrane contactor that specifically uses PMP fabric because, based on the prior art, PMP was known to shrink and break under tension. (See Cho, Background of the invention). Thus, Cho is specifically directed to the use of PMP fabric in a membrane contactor. The instant application does not teach or even mention the use of PMP fabric. Thus, Cho can not be intended for the exact same function and have the same type of membrane as that of the claimed invention, as the Examiner has stated.

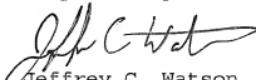
Furthermore, Cho is not directed and makes no mention of seals or welds between the end caps and the shell (see Sengupta Declaration, Paragraphs 12-13). Accordingly, why would one skilled in the art of membrane contactors look to Cho for addressing the problem solved by the instant application, i.e., welding the end cap to the shell by a single welding step? The answer is they would not, and the solution to the problem is found only in the instant application. Therefore, Cho is nonanalogous art to the instant invention.

Accordingly, this rejection must be removed and claims 1, 3-8 and 10-18 should be allowed.

Conclusion

In view of the foregoing, Applicant respectfully requests an early Notice of Allowance in this application.

Respectfully submitted,



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